AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 1, line 8, with the following rewritten paragraph:

U.S. Patent No. 5,952,587 ~~5,952,578~~ describes such force-sensing bearings. Figure 10b of this document illustrates how, in the case of a tapered roller bearing, the force (material elongation) measured by the sensors is divided into radial forces and axial forces. The problem of this solution is that the raceway angle has to be constant in order to decompose the forces into radial and axial forces. For rolling bearings comprising curved raceways, such as e.g. deep-groove ball bearings, the method described cannot be employed to determine the axial or radial forces acting on the rolling bearing with sensors arranged opposite the raceways.

Please replace the paragraph beginning at page 2, line 5, with the following rewritten paragraph:

The essence of the invention consists in arranging sensors (e.g. strain gauge sensors) on the outer diameter of the outer ring or on the inner diameter of the inner ring, which generate time signals of different length in the event of loading (Hertzian compression) of the rings by the rolling bodies depending on the axial position in the raceways of the rolling bearing. The signals of different length are generated by varying the length of two adjacent conductor track sections of the strain gauge sensor that lie in the circumferential direction 7 (Fig. 2). The time signals of different length in the event of loading are thus proportional to the contact angle of the rolling bodies in the raceway of the rolling bearing rings. This arrangement of the strain gauge sensors exploits the effect that, in the case of rolling bearings comprising curved raceways, the rolling bodies move out of the raceway base in the event of a combined radial-axial loading and assume a new equilibrium position outside the raceway base. The higher the axial loading becomes, the further the rolling body moves from the raceway base in the direction of the side area of the rolling bearing. This also results in a shift in the pressure ellipse between rolling bearing ring and rolling body in the axial direction. The pressure ellipse also leads to a length alteration in the circumferential direction 7 in the material of the rolling bearing ring. The sensors, having different widths in the axial direction, thus detect the length alteration in the material - upon the

rolling body rolling through - for different lengths. The length of the loading of a sensor can be converted into radial and axial forces through knowledge of the geometry of the rolling bearing.

Please replace the paragraph beginning at page 5, line 3, with the following rewritten paragraph:

Fig. [[2b]]2a illustrates the output signals of the Wheatstone bridge for the case where the rolling body rolls through in the region of the short conductor track sections 4a under the strain gauge sensor. The position of the rolling bodies that roll through under the sensors is identified by the arrow 10. The period duration 8a of the signals is correspondingly short.

Please replace the paragraph beginning at page 5, line 10, with the following rewritten paragraph:

Fig. [[2c]]2b illustrates the output signals of the Wheatstone bridge for the case where the rolling body rolls through in a region of the long conductor track sections under the strain gauge sensor. The position of the rolling bodies that roll through under the sensors is identified by the arrow 11. The period duration 8b of the signals is correspondingly long. The period duration is thus proportional to the angular position of the rolling bodies in the raceway given a known rotational speed of the rolling bearing.